DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Determination of Threatened Status and Critical Habitat for the Waccamaw Silverside

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service determines the Waccamaw silverside (*Menidia*

extensa) to be a threatened species and designates its critical habitat under provisions of the Endangered Species Act of 1973, as amended. The species is known only from Lake Waccamaw and the upper Waccamaw River in Columbus County, North Carolina. Recently completed research indicates nutrient loading has increased in lake Waccamaw. If this trend continues, habitat changes in the lake could jeopardize the survival of this species. Due to the species' limited distribution, its survival could also be threatened by any other factors that degrade water or habitat quality.

DATE: The effective date of this rule is May 8, 1987.

ADDRESSES: The complete file for this rule is available for inspection, by appointment, during normal business hours at the Endangered Species Field Office, 100 Otis Street, Room 224, Asheville, North Carolina 28801.

FOR FURTHER INFORMATION CONTACT: Nora Murdock at the above address (704/259–0321 or FTS 8/672–0321).

SUPPLEMENTARY INFORMATION:

Background

The Waccamaw silverside (*Menidia extensa*) is known only from Lake Waccamaw and the upper Waccamaw River in Columbus County, North Carolina. It was described by Hubbs and Raney (1946). This fish, also known as a "skipjack" or "glass minnow," inhabits open water throughout Lake Waccamaw, where schools are commonly found near the surface over shallow, dark-bottomed areas (Lee *et al.* 1980). The silverside has not been taken outside the lake, with the exception of the Waccamaw River immediately below the Lake Waccamaw dam during periods of very high water (Lindquist and Yarbrough 1982).

The Waccamaw silverside is a long (adults 2.5 inches) slender, almost transparent fish with a silvery stripe along each side. The eyes are large, and the jaw is sharply angled upward. Adults of the species feed on zooplankton. They are sexually mature at one year of age and spawn from April through June. Most silversides die shortly after spawning, but a few may survive a second winter. Since this fish is a short-lived species, it is subject to sudden extirpation should its habitat deteriorate to the point where reproduction fails. The silverside is an important prey species for large fishes in Lake Waccamaw (Lindquist and Yarbrough 1982).

Lake Waccamaw, the principal hibitat of the species, is considered unique. It is a registered North Carolina Natural Heritage Area and has been proposed as a National Natural Landmark. The lake and its drainage have a diverse fish fauna (56 species), including many popular game fish (Shute *et al.* 1981). Teulings and Cooper (1977) listed 17 species of plants and animals from in and around Lake Waccamaw, which were considered of special concern by biologists. Bailey (1977) commented that Lake Waccamaw ". . . apparently served as a minor center of evolutionary differentiation [for fish], and a rufuge for earlier forms." Fuller (1977) stated that "The Waccamaw basin in southeastern North Carolina and northeastern South Carolina supports more unique non-marine mollusks than any other locale in the state [North Carolina]."

Lake Waccamaw has a surface area of approximately 8,934 acres and has an average depth of only 7.5 feet (Shute *et al.* 1981). Although it is fed by acidic swamp streams, the lake has a virtually neutral pH (Davis and Louder 1969, Porter 1985). Dr. Charles Yarbrough (Wingate College, personal communication 1984) characterized Lake Waccamaw as "an island of neutrality in an acid sea." This neutral condition, unusual among North Carolina's coastal plain lakes, is believed to be caused by the buffering effect of the calcareous Waccamaw Limestone formation, which underlies the lake and is exposed on the north shore (Frey 1951).

Studies of Lake Waccamaw and its fish and mussel fauna, funded through the North Carolina Wildlife Resources Commission (NCWRC), were conducted from 1979 through 1981 (Linquist and Yarbrough 1982, Porter 1985). Those studies and other research (Linquist 1981, Casterlin *et al.* 1986) indicate the lake is experiencing increases in nutrient loading. If this trend continues, the overall water quality will deteriorate, and the lake's ecosystem will be adversely altered. These changes will threaten Lake Waccamaw's fauna, including the silverside. In the proceedings of the 1975 Symposium on Endangered and Threatened Biota of North Carolina (Cooper 1977), the silverside is categorized as "endangered."

The Waccamaw silverside was included in a March 18, 1975, Notice of Review published in the **Federal Register** (40 FR 12297). In the **Federal Register** of December 30, 1977 (42 FR 65209), the Service proposed endangered status and critical habitat for this species. On March 30, 1978, the time period for receiving comments on the proposal was extended 90 days. Considerable opposition was expressed with regard to the proposal.

The NCWRC and the Governor of the State recommended that the proposal be postponed pending further studies of the lake and its fauna. The 1978 amendments to the Endangered Species Act required that proposals for listing species be withdrawn if the listing was not made final within two years of the proposal; accordingly, the proposal to list this species was withdrawn on January 24, 1980 (45 FR 5782).

On December 30, 1982, the Service announced in the **Federal Register** (47 FR 58454) that this fish, along with 147 other fishes, was being considered for possible addition to the List of Endangered and Threatened Wildlife. On June 22, 1984, the Service announced that a status review was being conducted on this species, as well as a second species of fish, the Waccamaw killifish (*Fundulus waccamensis*), and a mussel, the Waccamaw spike (*Elliptio waccamawensis*). By letter and through personal contacts, the Service solicited data on the status and location of the species and their habitat, current and planned activities that might adversely affect the species or their habitat, and possible impacts to Federal activities if critical habitat were designated.

A total of 23 replies was received by the Service in response to the status review. Two respondents opposed the listing of the species and indicated that they did not think these species were endangered or threatened. Two other respondents, while not opposing the listing, pointed out potentials for conflict with planned or ongoing activities. These potential conflicts included highway construction in the vicinity of the lake and aquatic weed control programs administered by the U.S. Army Corps of Engineers (COE). Twelve respondents indicated that they had no problem with the listing of these species and their critical habitat. Seven respondents supported the listing. Among those supporting the listing were the North Carolina Department of Natural Resources and Community Development (NCDNRCD), Consevation Council of North Carolina, North American Native Fishes Association, Southeastern Natural Resources Center, and the National Wildlife Federation.

During the status review process, information was obtained on the Waccamac killifish and the Waccamaw spike, which must be further evaluated before a decision can be made on proposing these species for listing. Therefore, the Service, after receiving sufficient new information through the 1984 status review, only proposed the Waccamaw silverside for threatened species status.

On November 7, 1985, the Service published, in the **Federal Register** (50 FR 42320), a proposal to list the Waccamaw silverside as threatened and designate its critical habitat. That proposal provided information on the species' biology, status and threats, and the potential implications of the proposed designation of critical habitat. The proposal also solicited comments on the species and potential impacts of the proposed critical habitat designation.

Summary of Comments and Recommendations

In the November 7, 1985, proposed rule (50 FR 46320) and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. Appropriate State agencies, county governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. A newspaper notice summarizing the proposed rule was published in the *Whiteville News Reporter* and in the *Wilmingtan Star News* on November 28, 1985, which invited general public comment. A public hearing was requested on the proposed rule by Thomas Elliott, Mayor, Town of Lake Waccamaw. In the January 16, 1986, **Federal Register** (51 FR 2409), the Service announced that a public hearing would be held February 12, 1986, and that the public comment period would be extended until February 22, 1986. Appropriate State agencies, county governments, Federal agencies, scientific organizations, and other parties were again contacted and requested to comment. A newspaper notice of the public hearing and comment period extension was published in the *Whiteville News Reporter* on January 20, 1986, and in the *Wilmington Star News* on February 9, 1986. A total of 41 comments were received, in addition to 18 oral comments presented at the public hearing. Multiple comments from a single individual expressing the same opinion were counted as one response. The comments and public hearing are discussed below:

The Service received 21 comments supporting the proposal or expressing no problems. Three comments received expressed no position on the issue. Six letters supporting the listing were received from local landowners. One suggested that the critical habitat designation be extended to include the entire watershed for Lake Waccamaw. The Service does not believe the entire watershed is critical habitat for the Waccamaw silverside because it is not essential to the conservation of the silverside. The Service considered this suggestion; however, the Waccamaw silverside does not occur in Big Creek or any of the other tributaries which flow into Lake Waccamaw. As Lake Waccamaw is being designated critical habitat, it will be protected under section 7 of the Act from any Federal activities which occur in the watershed and result in "adverse modification" to the lake. Therefore, the Service believes that adequate protection will be provided to the species by designating the lake and the lowermost portion of Big Creek as critical habitat.

Eight Federal agencies, including the U.S. Forest Service, the Economic Development Administration, the Federal Energy Regulatory Commission, Geological Survey, Nuclear Regulatory Commission, and the Department of the Air Force, indicated that they had no proposed projects in the area that would affect or be affected by the proposed listing or designation of critical habitat.

Comments supporting the proposal were received from the NCDNRCD, Division of Parks and Recreation. Two other divisions of the NCDNRCD, the Division of Soil and Water Conservation, and the Division of Forest Resources, responded that they had no problems with the proposed listing. The NCWRC commented in support of the proposal. Comments in support of the listing were also received from the American Society of Ichthyologists and Herpetologists, the Southeastern Fishes Council, the North American Native Fishes Association, the National Wildlife Federation, and the Conservation Council of North Carolina.

The North Carolina Natural Heritage Advisory Committee, composed of representatives of State, conservation, and scientific organizations appointed by the Secretary of the NCDNRCD, at a March 4, 1986, meeting, unanimously endorsed a resolution in support of the Service's proposed listing of the Waccamaw silverside and designation of its critical habitat.

The Vice President of Federal Paper Board, Incorporated, which maintains a commercial timber operation in the Lake Waccamaw area, commented that he had no problem accepting the proposal, as long as it would not result in termination of plans to expand U.S. Highways 74 and 76 located north of the lake. The Service has been in contact with the North Carolina Department of Transportation (NCDOT) and the Federal Highway Administration (FHWA) with regard to this project and, as discussed in detail below, does not foresee any conflicts between protection of the silverside and completion of the highway project as presently planned.

Four other comments were received which did not state a position supporting or opposing the proposal. Two of these were from local landowners, one of whom noted that populations of fish other than the silverside had declined in the lake over the past decade. The other suggested that the Fish and Wildlife Service participate in the local land use planning process. A third response, from the Lieutenant Governor of North Carolina, recommended that the Service discuss in detail the significance of the designations with local officials in and around the Town of Lake Waccamaw, as well as answer the questions which have been raised regarding the adequacy of the water quality management plan developed by town and State officials and the potential impact on the lake from development activities. The fourth response, from the NCDOT, stated that it "does not object to the listing of this or any other species from the standpoint of species/habitat preservation." The NCDOT has plans for widening U.S. Highway 74 where it currently crosses Friar Swamp just north of Lake Waccamaw, as well as a bridge replacement project for the N.C. Highway 211 bridge over a canal south of Bolton. The NCDOT was concerned that the additional environmental requirements of the Endangered Species Act, if the species were listed and its critical habitat designated, would result in delays of project completion dates, and therefore increased project costs.

In response to these questions and comments, the Service would welcome any opportunity to assist a local community in developing land management plans which would preserve or enhance the habitat of an endangered or threatened species. Over the past two years Service personnel have made repeated trips to Lake Waccamaw for the express purpose of discussing this proposal with local officials, explaining the ramifications, and answering questions. Several informal meetings have been held with Town Council members, presentations were given to the Lake Waccamaw Water Quality Committee, and many discussions held with local residents and government officials. In addition, a public hearing was held in February 1986. The listing of the Waccamaw silverside as a threatened species and the designation of its critical habitat will impose the requirements of section 7 of the Endangered Species Act upon any federally funded project which may affect the species or its critical habitat,

such as the proposed widening and relocation of U.S. Highway 74. However, it is our understanding that the existing highway route across Friar Swamp will be used as a basis for construction of the additional two lanes. Since the lake's water quality and its endemic species, including the silverside, obviously survived the construction of the first highway across the swamp, there does not presently appear to be any reason why widening the existing highway would threaten the silverside. The working philosophy behind the section 7 consultation process involves examining the project and its potential impacts a very early stage in development, so that impacts can be minimized or eliminated without unduly delaying project completion. The proposed highway improvement project will cross Friar Swamp approximately 2.5 miles upstream from the lake. The Service believes that, with careful planning and construction, there is no presently known reason why this project cannot be completed as presently planned, with no serious impacts to the silverside.

The Service received 13 letters and a petition with 180 signatures opposing the proposed listing of the Waccamaw silverside and designation of its critical habitat. The majority of the letters of opposition simply stated the opinions that no Federal "intervention" was necessary or desirable in local affairs, or that Federal money would be better spent on other environmental problems such as cleaning up toxic waste dumps. Issues raised by those opposing the listing that have not been previously discussed are addressed below:

Two respondents recommended that action on the listing be postponed until more data on water quality had been collected. Another argued that there was no evidence that adverse changes in the lake's water quality would be detrimental to the silverside. The Service believes that the data on hand is sufficient evidence to conclude that the Waccamaw silverside qualifies for threatened status. Creager *et al.* (1984) identified an unnatural trend toward nutrient enrichment of Lake Waccamaw from non-point sources and recommended that action be taken immediately to halt or reverse the trend. The Lake Waccamaw Water Quality Committee, composed of local citizens and State, Federal, and local government representatives, concurred and added that the long residence time of water in the lake (about eight months) means that the system cannot readily flush itself of problems that do occur. Based upon three years of data taken from Lake Waccamaw, Casterlin *et al.* (1986) concluded that the lake is now incipiently eutrophic, and that continued high rates of phosphorus input would bring the lake to a hyper-eutrophic state by the end of the century, resulting in extinction of endemic fishes and mollusks. A similar large shallow lake north of Lake Waccamaw (Phelps Lake) has, in recent years, undergone massive algal blooms and associated fish kills as a result of excessive nutrient loading; a closely related species of silverside (*M. beryllina*) which was present prior to the onset of the algal blooms, has not vanished from the lake (P. Kornegay, NCWRC, personal communication 1986).

The Columbus County Commissioners passed a resolution opposing the listing of the fish and the designation of its critical habitat, stating that the county and the Town of Lake Waccamaw were capable of "preserving the quality of the lake without undue restrictions on the part of other levels of government." This resolution further stated that designation of Lake Waccamaw as a critical habitat would "unduly retard growth not only in the immediate area of the lake but also in the Big Creek watershed" and that "no effort has been initiated on the part of the Federal government to contact the Town of Lake Waccamaw and/or the County of Columbus to request land use planning or zoning as a method to address the issue of the lake's quality." The Service requested information on any economic impacts which might occur as a result of critical habitat designation, but no information on specific economic impacts was provided by anyone responding other than the NCDOT. Although the Commissioners' resolution stated that the nutrient loading problem could effectively be controlled at the local level, current data indicate that this has not occurred, since Casterlin *et al.* (1986) documented a substantial increase in orthophosphate concentrations and surface specific phosphorus loading rates as well as in the Palmer algal index for Lake Waccamaw since 1973. The Service has and will continue to work with the local governments.

The mayor of lake Waccamaw, representing the Town Council, commented in opposition to the listing. The Town Council also adopted a resolution opposing the proposed listing and designation of critical habitat. The mayor's response did not provide additional biological or economic data but challenged existing water quality data upon which the proposal to list the species was based. The Service concurs that extremely rapid increases in nutrient loading are not indicated by the available data; however, an unnatural trend toward eutrophication is documented in current data. While the town's commitment to prohibit intensive development within its zoning control is commendable, no authoritative statements can be made by local officials about the outlying areas of the Friar Swamp watershed, since they are not under the municipal control or ownerhsip of the town. The actions of the Lake Waccamaw Water Quality Committee are also commendable and their continuance should help protect good water quality in the lake although we remain concerned that these actions will not halt the trend toward increased nutrient loading in the lake, *infra*. The Committee report (NCDNRCD 1984) recognized that the Lake represents a unique and sensitive ecosystem where increases over current levels of nutrient loading would result in serious problems which would be difficult to reverse. This report further stated that such problems could be caused by extensive residential and state park development, large-scale timber harvest, and increased agricultural operations if such activities were conducted without regard for water quality.

Although the mayor maintains that more water quality data is needed than is currently available, and states that the Town of Lake Waccamaw samples and analyzes water from the lake one to three times per week year-round, the data from these analyses has never been presented to the Service. When Service personnel contacted the mayor to request the data from this ongoing water sampling, the mayor indicated that the data obtained from this effort were not substantial. The recent paper by Casterlin *et al.* (1986) indicates that, while the lake is not currently eutrophic, a clear danger of eutrophication exists, and all available evidence indicates that non-point sources of pollution are gradually contributing to increased nutrient loading in the lake.

A public hearing was held February 12, 1986, at 7:30 p.m. at the Lake Waccamaw Boys Home, Lake Waccamaw, North Carolina. Approximately 190 individuals attended the public hearing. Eighteen comments were received at the hearing and only those issues raised that were not addressed in the previous discussion of the written comments are summarized below.

Eleven other comments were received opposing the proposal. The majority of these did not present additional information, but expressed general opposition to increased Federal

involvement in the local area. Four comments were made in support of the proposal, and three comments were made which expressed concerns or questions but stated no position on the issue. Those who spoke in support of the proposal stated their belief that the listing would benefit the lake and surrounding community by helping to assure good water quality, high property values, and protection from future Federal projects having adverse environmental impacts. Several also pointed out evidence of declining water quality, and expressed concern for the future of the large number of rare species inhabiting the lake.

Several questions were asked that have not been previously addressed. These were: 1. Will the listing of the silverside and designation of its critical habitat provide funding for extensive water quality monitoring? 2. Will the listing require paper companies to use forestry "Best Management Practices" when they harvest timber in the lake's watershed or require a specific cutting rotation? 3. Will the designation of critical habitat provide incentives for education of foresters and farmers in the watershed, provide grants for expansion of municipal water sewer systems, and provide expertise and labor to clean up nearby weed-choked canals where water quality is poor? 4. Will the designation provide a plan for minimizing hazardous chemical spills on U.S. Highways 74–76?

In response to these questions, the Service believes that one of the primary objectives for this species, once it is listed, will be to initiate a consistent program of water quality monitoring for the lake, which will accurately reflect serious problems and hopefully allow time to take remedial action before the entire lake is adversely affected. Under section 7 of the Act, the FHWA will be required to ensure that the construction of additional lanes for U.S. Highway 74 across Friar Swamp will not adversely modify Lake Waccamaw, nor likely jeopardize the continued existence of the Waccamaw silverside. Measures for minimizing potentials for hazardous chemical spills on Highway 74 through Friar Swamp will be incorporated into planning for the project as part of the section 7 consultation process. Funding for water quality monitoring is not automatically assured as a result of this listing and designation of critical habitat; however, the Service intends to seek ways of providing such monitoring. With regard to forestry management practices used by the commercial timber companies who own parts of Friar Swamp, the requirements of section 7 of the Endangered Species Act do not extend to private operations, where no Federal involvement exists. However, the Service will work toward an education effort for voluntary conservation efforts by private interests in the area which may be affecting the lake's water quality. The listing of this fish and designation of its critical habitat will not automatically provide grants to the Town of Lake Waccamaw for the purpose of extending its water and sewer systems; however, Federal agencies which administer such grants, such as the Environmental Protection Agency (EPA) and the Economic Development Administration, are required, as are all Federal agencies, to untilize their authorities for the purposes of conserving endangered and threatened species. Areas with listed species present which could benefit from such grants may therefore be given higher priority for available monies than other areas where endangered species did not exist. As for cleaning up weed-choked canals, these areas do not provide habitat for the silverside; therefore, since no effect upon the species exists, the Endangered Species Act would not be involved.

One person commented that the Service should not designate critical habitat since data are lacking to determine it. Section 4(a)(3) of the Act requires that critical habitat be designated to the maximum extent prudent and determinable concurrently with the determination that a species is endangered or threatened. After review and consideration of all the available data, the Service believes that the critical habitat for the Waccamaw silverside is prudent and determinable based upon currently available data, and is therefore proceeding with designation.

One person questioned the relationship of section 7 to Federal activities such as FHA loans, and expressed concern that the additional cost of "an environmental impact statement" would be added to the costs of housing construction at Lake Waccamaw. FHA loans and other Federal activities in the area will only fall under the requirements of section 7(a)(2) of the Act if there is a potential for them to affect this species or its critical habitat. It is difficult for the Service to conceive of a single house construction project, if properly planned and connected to the sewer system, which would have significant impacts on the water quality of the lake. Also, an environmental impact statement (EIS) is not automatically required in any case under the provisions of section 7. EIS's are required for certain projects by the National Environmental Policy Act, which is separate legislation unrelated to the Endangered Species Act. Under section 7(c) of the Endangered Species Act, Federal agencies are required to prepare a biological assessment to assess anticipated impacts if their proposals involve "major construction activities" (see 51 FR 19958; June 3, 1986) and listed species or critical habitat may be present in the action area. The majority of section 7 consultations do not involve major projects or require biological assessments. In any case, the responsibility for assessing the impacts of a proposed action on the species or critical habitat belongs to the Federal agency involved. In summary, any proposed activities, including housing construction, highway construction, and industrial development, are affected by the requirements of section 7 of the Endangered Species Act only if they involve activities which are Federally funded, authorized or carried out. Furthermore, the Service has an excellent record of cooperating with other Federal agencies and private individuals and local governments in resolving potential conflicts under section 7 early in the project planning stages, so projects are completed in most cases with minimal or no delays.

The mayor of Lake Waccamaw criticized the water quality studies of the lake for the wide variability in results of phosphate tests (0 to 0.11 mg/l) and for the fact that the final 12 testing periods of the study were used to "negate opinions formed with all the previous testing." The Service concedes that the mayor's allegation of wide variability in test results is correct. However, in the final analysis of data presented in Casterlin *et al.* (1986), this variability was taken into account by the use of measures of central tendencies for comparison. These comparisons show that the orthophosphate concentrations in Lake Waccamaw quadrupled between 1973 and the 1979 to 1981 testing period. As for the mayor's contention that final results contradicted the results of preliminary reports in this study, the picture is clarified by the following quote from the 1980 preliminary report (Lindquist and Yarbrough 1982):

> We now can suggest that the general water quality appears to be good . . . however there are some changes in one or two water quality parameters that might pose a problem if they are trends. We believe that the third year of sampling will strongly suggest whether there is a general decline in the quality of these features or whether the

differences simply represent normal fluctuations.

The final year of sampling did indeed indicate that these were trends toward declining water quality as reported in Casterlin *et al.* (1986).

The mayor further criticized the existing data on water quality in Lake Waccamaw by stating that the algal index did not show any change from 1973, and that this was "reinforced by the Secchi Disk depth remaining the same. Given variability of individual nitrogen analysis values, the change reported from a 1973 mean of 0.12 mg/l is not a significant change." The Service does not accept the mayor's contention that the Palmer algal index did not show any change from 1973. Casterlin *et al.* (1986) cited Morris *et al.* (1977) as reporting the Palmer algal index for Lake Waccamaw in 1973 being no higher than 4. The latest calculations of this index (1979 to 1981) indicate that the Palmer algal index for the lake is now 19, indicating probable evidence of high levels of organic pollution (Casterlin *et al.* 1986). Index values of 20 or higher constitute strong evidence of high levels of organic pollution. The Secchi Disk depth reading is a measure of water transparency and is not related to the algal index. Although the change in *summer* concentrations of nitrates does not appear significant at first glance, the *overall* increase of nitrate concentrations and loading rates for Lake Waccamaw between 1973 and 1981 were significant. As reported in Casterlin *et al.* (1986), overall nitrate concentrations in the lake increased by almost 50 percent, and the nitrogen loading rate (milligrams per square meter per year) increased from 2,800 to 3,700 during the same period. Vollenweider (1968) stated that a body of water is "in danger with regard to its trophic level" when springtime concentrations of inorganic nitrogen compounds exceed 200 to 300 mg/m3. The mean springtime (February to April) nitrate concentrations in Lake Waccamaw during the 1979 to 1981 sampling period, was 324.7 mg/m3 (Casterlin *et al.* 1986), which clearly exceeds Vollenweider's maximum level. Vollenweider further suggested maximum permissible surface specific nitrogen loading rates for lakes up to 5 meters in depth of not more than 1,000 mg/m2 per year; values exceeding 2,000 mg/m2 represented "dangerous" loading for lakes of this depth. As stated in Casterlin *et al.* (1986), the nitrogen loading of Lake Waccamaw was within this "dangerous" range in 1973 as well as in 1981, which makes the subject of significant increases between these two periods irrelevant. Based on Vollenweider's standards, the lake was already in trouble in 1973, and the small additional increase in these values six to eight years later maintain the lake's status in this range.

The mayor further stated: "The only reasonable conclusion is that it will take more testing periods over a much longer time to determine a trend of change. The inescapable conclusion is: any predictions of imminent danger to the Waccamaw silverside by rapidly increasing nutrient loading and destruction of its habitat must be based on conjecture, philosophical views, or reasons other than the scientific data at hand." The Service does not agree that more testing periods over a much longer time are necessary now to determine a trend of change in Lake Waccamaw's water quality. The existing data, as interpreted by Casterlin *et al.* (1986), indicate that phosphate concentrations and loading rates in the lake more than tripled in the years between 1973 and 1981. They further state that "continued high rates of phosphorus input (organic pollution) will likely bring the lake to a hyper-eutrophic state. . . by the end of the century." This represents evidence of more than just a trend. It documents the classification of the lake at present as "incipiently eutrophic" as defined in standard technical terms. The Service is not predicting "imminent danger to the Waccamaw silverside by rapidly increasing nutrient loading and destruction of its habitat"; this is reflected in the designation of the species as threatened rather then endangered. The Service believes that if water quality in Lake Waccamaw remains at least as good as it was when the last water quality measurements were taken in 1981, the silverside's continued survival will be assured. However, if the tend shown by the data presented in Casterlin *et al.* (1986) continues at the same rate in succeeding years, there is a clear danger of eutrophication and a lessening of the silverside's chances for survival in the wild. Although the mayor challenged the validity of existing water quality data, no additional data or information was brought forth. Therefore, the Service believes that, based on a careful analysis of all the currently existing commercial and scientific evidence, that the Waccamaw silverside merits designation as a threatened species and that Lake Waccamaw should be designated as its critical habitat.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that the Waccamaw silverside should be classified as a threatened species. Procedures found at section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.)* and regulations (50 CFR Part 424) promulgated to implement the listing provisions of the Act were followed. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to the Waccamaw silverside (*Menidia extensa*) are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* The water quality of Lake Waccamaw, the only known habitat of the Waccamaw silverside, is a major concern. Since the publication of the proposed rule, a paper containing the most recent update of water quality data collected from lake Waccamaw has been published (Casterlin *et al.* 1986). The conclusions of this study were that the Palmer index value (an assessment of the lake's trophic status based on presence of various pollution-tolerant genera of algae) for the lake in 1981 was indicative of high levels of organic pollution. This conclusion was further supported by three years of physicochemical measurements which documented excessive phosphorus loading. Furthermore, both orthophosphate concentrations and the surface specific phosphorus loading rates, in addition to the Palmer index, have increased substantially since 1973 when the lake was classified as "mesotrophic" by a national eutrophication survey (NTIS 1973). This trend, as well as the sensitive, unusual nature of this shallow lake, has led some researchers to state that ". . . a clear danger of eutrophication exists and any increase in nutrient loading could tip the uneasy balance" and threaten the existence of the silverside and other endemic species (Lindquist and Yarbrough 1982). Casterlin *et al.* (1986) state that Lake Waccamaw is now incipiently euthrophic, and continued high rates of phosphorus input "will likely bring the lake to a hyper-eutrophic state characterized by massive algal blooms" by the end of the century. The lake's environmental quality and its fauna could also be threatened by habitat alteration resulting from development and land use in Lake Waccamaw and its watershed (expecially Big Creek) if these activities are not planned and implemented with protection of Lake Waccamaw's ecosystem in mind. The short life cycle of the fish (one to two years) and its

dependence on the unique habitat conditions present in Lake Waccamaw make it extremely vulnerable to any significant change in its environment. The species is potentially threatened by a proposed highway project across the lake's watershed which involves expanding the existing two-lane U.S. Highway 74 to a four-lane facility. The Waccamaw silverside could be adversely affected if the project were completed without consideration of potential impacts on the water quality of Lake Waccamaw. The effect on the fish and its habitat would depend upon the nature of the construction and the resultant modifications to stream flows, silt loads, water temperatures, and pH.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* There is no evidence that overutilization is or will be a problem for this species. The silverside population numbers in the millions. In addition, the one- to two-year life cycle of the fish results in a virtually complete turnover of the population every year. Therefore, the taking of individuals for bait and for scientific purposes is not a threat to this species.

C. *Disease or predation.* Currently, there is no evidence of threats to this species from disease or predation. Although the silverside is one of the principal forage species for Lake Waccamaw's game fish, the high population levels of the silverside and the presence of other prey species in large numbers are sufficient to sustain this predation pressure without the species being threatened.

A recent application by the Waccamaw Siouan Development Association for a permit to propagate hybrid bass at several sites in the Lake Waccamaw watershed was initially denied by the NCWRC. Upon further review, the permit was granted on condition that extra measures were installed to prevent escape of fish from the rearing ponds. Escape of non-native predators from such a project into the system could upset the existing predator-prey relationships in the lake to the detriment of the Waccamaw silverside and other fishes now present in the Lake.

D. *The inadequacy of existing regulatory mechanisms.* Lake Waccamaw is the property of the State of North Carolina. The NCDNRCD's Division of Parks and Recreation administers the lake by authority given in North Carolina General Statute, Chapter 113, Section 35, and Subchapter 120 of the State Lakes Regulations. Through the above statute and implementing regulations, the North Carolina Parks Department reviews and issues special use permits for scientific research, educational, and noncommercial activities on the lake. By the same authority, the Parks Department regulates commercial activities, construction of piers, boat docks, drainage ditches, and similar activities on the lake. The NCWRC, by authority given in North Carolina General Statute, Chapter 113, regulates the taking of the Waccamaw silverside and issues collection licenses for the taking of nongame species as provided in sections 272.4 and 292. Although these statutes provide protection to individual fish, they do not afford protection for the habitat upon which the species depend. Scientific or commercial collecting do not pose threats to the species that would require Federal regulation (see "Special Rules" section of this rule). However, additional protection will be provided the species and its habitat by requiring Federal agencies to consult with the Service when projects they fund, authorize, or carry out may affect the species or its critical habitat.

E. *Other natural or manmade factors affecting the species' continued existence.* The Waccamaw silverside has a very short life cycle, usually dying shortly after spawning as a one-year-old. Therefore, if a year class of the silverside fails to reproduce in any one year, the species could be lost. The continued increase in nutrient loading could result in serious deterioration of water quality which, even on a short-term basis, could precipitate the extinction of this fish.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to make this rule final. Based on this evaluation, the preferred action is to list the Waccamaw silverside as a threatened species with special rules to allow take in certain instances permitted under State law. There is only one known population of this species and at present its population level and environmental conditions in its habitat are adequate to justify threatened status. However, if, as expected, present nutrient loading continues to increase and the lake's habitat and water quality deteriorate, the species is likely to become endangered in the foreseeable future. It should be pointed out that actual loss of habitat and decline in the population is not required to list a species as threatened. Reasons for the critical habitat designation are discussed in the "Critical Habitat" section of this rule.

Critical Habitat

Critical habitat, as defined by section 3 of the Act, means: (i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection, and (ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Section 4(a)(3) of the Act requires that critical habitat be designated to the maximum extent prudent and determinable concurrently with the determination that a species is endangered or threatened. Critical habitat is being designated for the Waccamaw silverside to include Lake Waccamaw (8,934 acres), and Big Creek from its mouth at the head of Lake Waccamaw upstream approximately 0.4 mile to where the creek is crossed by County Road 1947 in Columbus County, North Carolina (see "Regulations Promulgation" section of this proposal for a precise description of critical habitat). The good water quality of Big Creek and Lake Waccamaw is one of the most important factors in the continued survival of this species. The clean sand bottom of the lake is used by the fish during spawning.

Section 4(b)(8) requires, for any proposed or final regulation that designates critical habitat, a brief description and evaluation of those activities (public or private) which may adversely modify such habitat or may be affected by such designation. Activities that presently occur within the proposed critical habitat include, in part, fishing, swimming, water skiing, boating, scientific research, and nature study. These activities do not appear to be adversely impacting the area. Other activities that do or could occur in the watershed of Lake Waccamaw and could impact the critical habitat include, in part, indiscriminate logging, land use changes, stream alterations such as channelization or impoundment, bridge and road construction, improper pesticide/herbicide application, and point and nonpoint discharges.

There are also activities with Federal involvement that do or could occur and that may be affected by designating critical habitat. These activities include, in part, construction and/or upgrading of waste treatment systems, stream alterations, bridge and road construction

(including the proposed expansion/relocation of U.S. Highway 74 from west of Hallsboro to east of Bolton), filling of wetlands, discharges of municipal and industrial wastes, and State park acquisition and development. Some of these activities could degrade the water and substrate quality of Lake Waccamaw by increasing siltation and/or nutrient loading, or by altering water temperature and pH, if they are conducted without consideration for the protection of Lake Waccamaw's environmental quality.

Private activities with no Federal involvement will not be affected by this critical habitat designation. However, if a Federal agency is involved in activities that may affect the critical habitat, section 7(a)(2) of the Act, as amended, requires that agency to consult with the Service to ensure that actions it authorizes, funds, or carries out are not likely to destroy or adversely modify critical habitat.

Section 4(b)(2) of the Act requires the Service to consider economic and other impacts of designating a particular area as critical habitat. To collect this information, the Service has solicited comments from Federal and State agencies, local governments, planning entities, businesses, the scientific community, and interested parties through written requests. Public notices and news releases have been published and interviews have been conducted with local news media. Telephone conversations and personal contacts have been made with local governmental officials, Federal and State agency personnel, and business leaders. The Service has held several informal meetings with local government officials, both prior to publication of the proposal and during the comment period, to which the public was invited. In addition, the Service has given presentations and participated in the meetings of the Lake Waccamaw Water Quality Committee. The material collected during this process was incorporated into an economic analysis of the impacts of designating critical habitat.

All Federal and State agencies responding, except the NCDOT, indicated that they anticipate no economic impacts to result from the designation of critical habitat. The NCDOT responded that the designation of critical habitat could impact on the proposed widening/relocation of U.S. Highway 74 from Hallsboro to Bolton. Several local businessmen and government officials indicated that failure to construct this highway project would have an impact on the local community in terms of jobs and business access, as well as public safety. The NCDOT currently has filed an application for a 404 permit from the COE, Wilmington District, to place fill in wetlands in association with the construction of the two additional lanes of U.S. Highway 74 across Friar Swamp. The NCDOT has indicated that any additional environmental review requirements and resultant delays would increase the cost of this project. However, they provided no specific information concerning economic or other impacts. Portions of the U.S. Highway 74 project which have already been constructed in adjacent areas across wetlands have demonstrated the ability of the NCDOT to effectively control siltation and other effects of the construction, and recent conversations with the personnel of that department have revealed that they do not foresee adverse impacts upon Lake Waccamaw from the completion of this project across Friar Swamp.

The EPA was contacted with regard to existing discharge permits or pending permit applications that would affect or be affected by this designation. In conversations with EPA and State personnel, it was revealed that there are two existing NPDES permits authorized for Columbus County. Both the industries having active NPDES permits in this area, Federal Paper Board Company and National Spinning Company, discharge into areas outside the Lake Waccamaw watershed. EPA and the State Division of Environmental Management (NCDNRCD) personnel stated that there were no pending or existing permits which would affect or be affected by the critical habitat designation.

The Soil Conservation Service and the Economic Development Administration were both contacted by letter and telephone, and both agencies indicated that they had no existing or proposed projects which would affect or be affected by the designation.

The Farmers Home Administration was contacted by letter and telephone. Personnel with the North Carolina office of that agency indicated during telephone conversations with the Service that they were not aware of any projects, existing or proposed, in the area which would affect or be affected by critical habitat designation. They stated, however, that if the municipal sewer system for the Town of Lake Waccamaw were ever upgraded, they might be involved in the funding for such a project. Upgrading of the municipal sewer system could preserve or improve the habitat of the Waccamaw silverside.

The COE, Wilmington District, was contacted by letter and by telephone. Personnel with that agency's Regulatory Functions Branch and Environmental Resources Branch indicated that they knew of no proposed or existing projects or existing permits or pending permit applications, other than that of the NCDOT for the construction of U.S. Highway 74, which would affect or be affected by critical habitat designation. The FHWA, as the lead agency in the construction of U.S. Highway 74, would be designated as responsible for fulfilling the section 7 consultation requirements of the Endangered Species Act for that project. COE personnel indicated that although they had been requested in the past to conduct weed control activities (primarily herbicide spraying) in areas adjacent to Lake Waccamaw, they had no plans for pursuing such projects in the foreseeable future.

Lake Waccamaw is the property of the State of North Carolina with the NCDNRCD (Division of State Parks and Recreation) administering the lake by authority of North Carolina General Statute. Lake Waccamaw State Park is a relatively undeveloped 273-acre tract. The NCDNRCD, Division of State Parks and Recreation, responded in support of the proposal to list the Waccamaw silverside as threatened and designate Lake Waccamaw as its critical habitat.

With the exception of the State park, the remainder of Lake Waccamaw's shoreline is in private ownership, with the principal form of development being for private residences. The 85-square-mile watershed draining into Lake Waccamaw is predominantly rural, dominated by small farms and large timber companies. There is no known Federal involvement (other than the proposed highway project) in the watershed which would affect or be affected by critical habitat designation.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed

species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against taking and harm are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR Part 402. Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agencies must enter into formal consultation with the Service. It has been the experience of the Service that nearly all section 7 consultations are resolved so that the species is protected and the project objectives are met. The Service is presently aware of only one proposed Federal project (the widening/relocation of U.S. Highway 74) that may affect the Waccamaw silverside and its critical habitat. The Service has been in contact with the FHWA in North Carolina and the NCDOT concerning the potential impacts of this project on the species and its habitat.

Section 9(a)(1) of the Act lists prohibited acts which apply to any fish or wildlife species listed as endangered. Section 4(d) of the Act provides that these same prohibitions may, by regulation, be applied to a threatened species. The Service does not believe that it is necessary and advisable to the conservation of the Waccamaw silverside to apply all of the prohibitions listed under section 9(a)(1).

The Waccamaw silverside is threatened by alteration and/or degradation of water and habitat quality, not by intentional, direct taking of the species or by commercialization. Individuals of the species are estimated to number more than a million, with virtually the entire population being replaced each year by a new generation. State regulations governing the take of this and other Lake Waccamaw species presently exist, and the Service has concluded that these regulations are sufficient to protect the Waccamaw silverside from any threat which may arise from excessive collecting. The Service believes that the imposition of additional prohibitions would result in needless conflict with ongoing activities in Lake Waccamaw (i.e., U.S. bait seining) and would not promote the conservation of the species.

Section 4(d) requires that the Secretary shall issue such regulations as he deems necessary and advisable to provide for the conservation of threatened species. The Service believes that enforcement of State regulations governing take will be sufficient to protect this species. However, to support State regulations governing take and provide for the conservation of the species, the Service sets forth a special rule (see "Special Rule" section) that will provide the protection of the Endangered Species Act only when State laws governing the species were violated. The Service believes this special rule is consistent with the purposes of the Act and will facilitate the conservation of the Waccamaw silverside.

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).

Regulatory Flexibility Act and Executive Order 12291

The Department of the Interior has determined that designation of critical habitat for this species is not a major rule under Executive Order 12291 and certifies that this designation will not have a significant economic effect on a substantial number of small entities under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*)

Present and planned uses of the critical habitat area and the watershed above it are compatible with the critical habitat designation based on the information discussed in this rule concerning public projects within and private lands fronting the proposed critical habitat. It is not expected that significant economic impacts will result from the critical habitat designation. In addition, there is no known involvement of Federal funds or permits that would affect or be affected by the critical habitat designation for the private lands that front the critical habitat area. No direct costs, enforcement costs, information collection, or record keeping requirements are imposed on small entities by the critical habitat designation. Further, the rule contains no information collection or record keeping requirements as defined by the Paperwork Reduction Act of 1980. These determinations are based on a determination of effects that is available at the U.S. Fish and Wildlife Service, Office of Endangered Species, 1000 North Glebe Road, Arlington, Virginia.

References Cited

Bailey, J.R. 1977. Watersheds and Critical Areas. Pages 268–277 *in* J.E. Cooper *et al.* (eds.). Endangered and Threatened Biota of North Carolina. North Carolina Museum of Natural History. Raleigh.

Casterlin, M.E., W.W. Reynolds, D.G. Lindquist, and C.G. Yarbrough. 1986. Algal and Physicochemical Indicators of Eutrophication in a Lake Harboring Endemic Species: Lake Waccamaw, North Carolina. Journal of the Elisha Mitchell Scientific Society. 100(3):83–103.

Cooper, J.E., ed. 1977. Endangered and Threatened Plants and Animals of North Carolina; Proceedings of the Symposium on Endangered and Threatened Biota of North Carolina. North Carolina Museum of Natural History, Raleigh, NC. 444 pp.

Creager, C.S., N.K. Browne, and R.E. Shaw. 1984. Modeling of phosphorus concentrations in Lake Waccamaw, North Carolina, with an analysis of economic alternatives and policy options to preserve water quality. 1984. Master's Project, Duke University, School of Forestry and Environmental Studies. 125 pp.

Davis, J.R., and D.E. Louder. 1969. Life History of *Menidia extensa*. Transactions of the American Fisheries Society 98(3): 466–472.

Frey, D.G. 1951. The Fishes of North Carolina's Bay Lakes and Their Intraspecific Variation. Journal of the Elisha Mitchell Scientific Society 67(1):1–44.

Fuller, S.L.H. 1977. Freshwater and Terrestrial Mollusks. Pages 143–153 *in* J.E. Cooper *et al.* (eds.). Endangered and Threatened Biota of North Carolina. North Carolina Museum of Natural History, Raleigh.

Hubbs, C.L., and E.C. Raney. 1946. Endemic Fish Fauna of Lake Waccamaw, North Carolina. Miscellaneous Publication University Michigan Museum Zoology 65:1–30.

Lee, D.S., C.R. Gilbert, C.H. Hocutts, R.E. Jenkins, E.E. MacAllister, and J.R. Staufer, Jr. 1980. Atlas of North American Freshwater Fishes. North Carolina State Museum of Natural History, Raleigh, NC. i-x plus 867 pp.

Lindquist, D.G. 1981. Endemic Fishes of Lake Waccamaw. Kin'Lin' 2(5):38–41.

Lindquist, D.G., and C.G. Yarbrough. 1982. Status of the Endemic Ichthyofauna of Lake Waccamaw, North Carolina. North Carolina Endangered Species Restoration Technical Report E–1–VI–1–61 (plus appendices 62–108).

National Technical Information Service. 1973. Compendium of National Eutrophication Survey Lakes in North Carolina—Lake Waccamaw. Working Paper No. 391,

N.T.I.S. Accession No. PB-252 047/AB. Springfield, VA.
North Carolina Department of Natural Resources and Community Development. November 26, 1984. Lake Waccamaw Water Quality Committee report. 16 pp.
Palmer, C.M. 1969. A composite rating of algae tolerating organic pollution. Journal Phycology 5:78–82.
Porter, H. 1985. Molluscan Census and Ecological Interrelationships: Rare and Endangered Fauna of Lake Waccamaw, North Carolina, Watershed System. North Carolina Endangered Species Restoration Technical Report E-1-VI-7. 372 pp.
Reynolds, W.W., and M.E. Casterlin. 1981. Thermal Preferenda and Diel Activity Patterns of Fishes from Lake Waccamaw. Brimleyana: 7:55–60.
Shute, J.R., P.W. Shute, and D.G. Lindquist. 1981. Fishes of the Waccamaw River Drainage. Brimleyana: 6:1–24.
Shute, P.W., D.G. Lindquist, and J.R. Shute. 1983. Breeding Behavior and Early Life History of the Waccamaw Killifish, *Fundulus waccamensis*. Environmental Biology Fishes 8 (20):293–300.
Shute, P.W., J.R. Shute, and D.G. Lindquist. 1979. Notes on the Spawning, Fecundity and Diet of the Waccamaw Killifish, *Fundulus waccamensis*. Association Southeastern Biologist Bulletin 26(2):49.
Teulings, R.P., and J.E. Cooper. 1977. Cluster Areas. Pages 409–433 *in* J.E. Cooper *et al.* (eds.). Endangered and Threatened Biota of North Carolina. North Carolina Museum of Natural History, Raleigh.
Vollenweider, R.A. 1968. Scientific fundamentals of the eutrophication of lakes and flowing waters, with particular reference to phosphorus and nitrogen as factors in eutrophication. OECD Tech. Rept. DAS/CSI/68.27 (revised 1971). 159 pp.

Author

The primary author of this final rule is Nora Murdock, Endangered Species Field Office, 100 Otis Street, Room 224, Asheville, North Carolina 28801 (704/259–0321 or FTS 8/672–0321).

List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

Regulations Promulgation

PART 17—[AMENDED]

Accordingly, Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, is amended as set forth below:

1. The authority citation for Part 17 continues to read as follows:

Authority: Pub. L. 93–205, 87 Stat. 884; Pub. L. 94–359, 90 Stat. 911; Pub. L. 95–632, 92 Stat. 3751; Pub. L. 96–159; 93 Stat. 1225; Pub. L. 97–304, 96 Stat. 1411 (16 U.S.C. 1531 *et seq.*).

2. Amend § 17.11(h) by adding the following, in alphabetical order under "FISHES," to the List of Endangered and Threatened Wildlife.

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species							
Common name	Scientific name	Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
FISHES							
Silverside, Waccamaw	*Menidia extensa*	U.S.A. (NC)	Entire	T	265	17.95(e)	*ERR81*17.44(s)

3. The following paragraphs (s) is added to § 17.44:

§ 17.44: Special rules—fishes.

* * * * *

(s) Waccamaw Silverside (*Menidia extensa*). (1) No person shall take the species, except in accordance with applicable State fish and wildlife conservation laws and regulations.

(2) Any violation of applicable State fish and wildlife conservation laws or regulations with respect to the taking of this species will also be a violation of the Endangered Species Act.

(3) No person shall possess, sell, deliver, carry, transport, ship, import, or export, by any means whatsoever, any such species taken in violation of these regulations or in violation of applicable State fish and wildlife conservation laws or regulations.

(4) It is unlawful for any person to attempt to commit, solicit another to commit, or cause to be committed, any offense defined in paragraphs (s) (1) through (3) of this section.

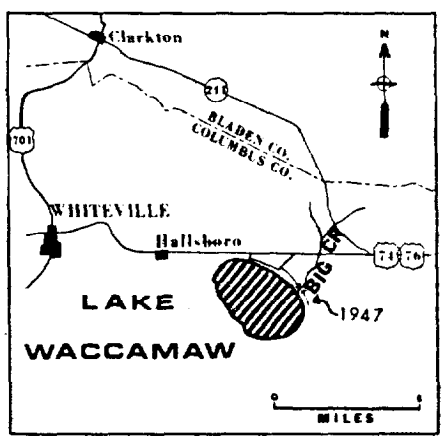
4. Amend § 17.95(e) for "FISHES," by adding critical habitat for the Waccamaw silverside as follows: [The position of this entry under section 17.95(e) follows the same sequence as the species occurs in § 17.11.]

§ 17.95 Critical habitat—fish and wildlife.

(e) * * *

* * * * *

Waccamaw Silverside (*Menidia extensa*)



North Carolina, Columbus County. Lake Waccamaw in its entirety to mean high water level, and Big Creek from its mouth at Lake Waccamaw upstream approximately 0.6 kilometer (0.4 mile) to where the creek is crossed by County Road 1947.

Constituent elements include high quality clear open water, with a neutral pH and clean sand substrate.

* * * * *

Dated: March 24, 1987.

Susan Recce,

Acting Assistant Secretary of Fish and Wildlife and Parks.

[FR Doc. 87-7786 Filed 4-7-87; 8:45 am]

BILLING CODE 4310-55-M